

TAN75A

75 Watts, 50 Volts, Pulsed
Avionics 960 - 1215 MHz

GENERAL DESCRIPTION

The TAN75A is a high power COMMON BASE bipolar transistor. It is designed for pulsed systems in the frequency band 960-1215 MHz. The device has gold thin-film metallization and diffused ballasting for proven highest MTTF. The transistor includes input and output prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C² 290 Watts

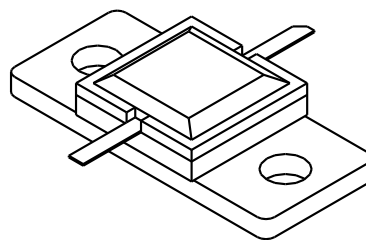
Maximum Voltage and Current

BVces Collector to Base Voltage 55 Volts
BVebo Emitter to Base Voltage 4 Volts
Ic Collector Current 9 Amps

Maximum Temperatures

Storage Temperature - 65 to + 200°C
Operating Junction Temperature + 200°C

CASE OUTLINE 55AZ, STYLE 1



ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{out}	Power Out	F = 960-1215 MHz	75	80		Watts
P_{in}	Power Input	V _{cc} = 50 Volts			12	Watts
P_g	Power Gain	PW = 20 μsec	8.0	8.5		dB
η_c	Collector Efficiency	DF = 5%		40		%
VSWR	Load Mismatch Tolerance	F = 1090 MHz			20:1	

BVebo	Emitter to Base Breakdown	I _e = 10 mA	4			Volts
BVces	Collector to Emitter Breakdown	I _c = 15 mA	50			Volts
h_{FE}	DC - Current Gain	I _c = 15 mA, V _{ce} = 5 V	10		100	
θ_{jc}²	Thermal Resistance				0.6	°C/W

Note 1: A rated output power and pulse conditions

2: At rated pulse conditions

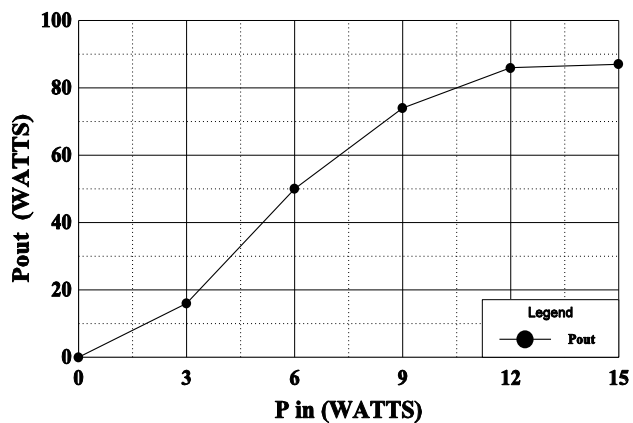
Initial Issue June, 1994

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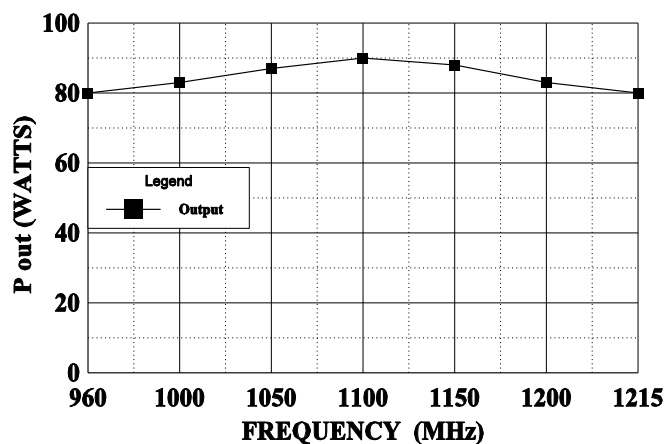
POWER OUTPUT vs POWER INPUT

Vcc = 50 V, 1090 MHz



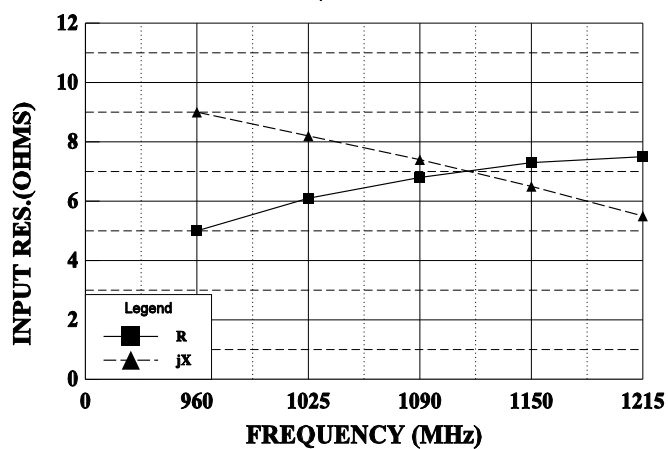
POWER OUTPUT vs FREQUENCY

Vcc = 50 V, F = 1090 MHz



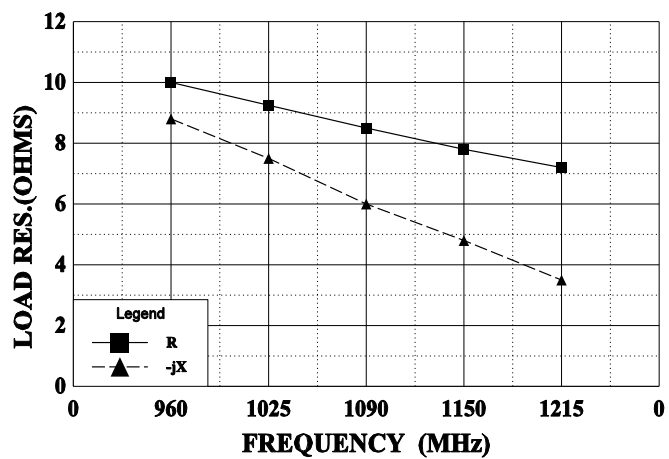
SERIES INPUT IMPEDANCE vs FREQUENCY

Vcc = 50 V, Pout = 75 W



SERIES LOAD IMPEDANCE vs FREQUENCY

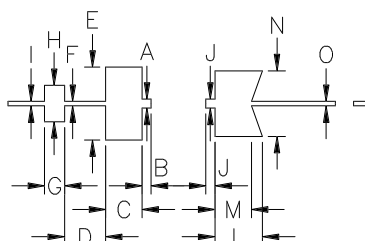
Vcc = 50 V, Po = 75 W



REVISIONS

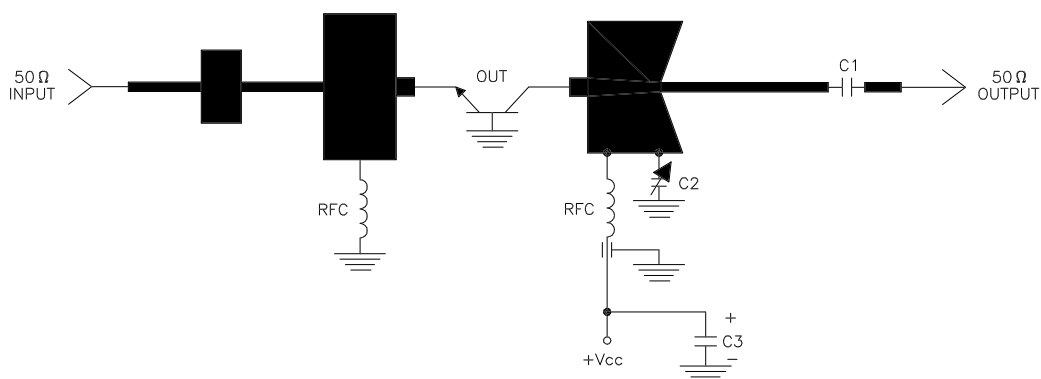
ZONE	REV	DESCRIPTION	DATE	APPROVED
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DIM	INCHES
A	.050
B	.050
C	.200
D	.225
E	.400
F	.025
G	.110
H	.200
I	.025
J	.050
K	.050
L	.260
M	.200
N	.360
O	.025



TAN75A TEST CIRCUIT

$f = 960-1215\text{MHz}$
 $V_{cc} = 50\text{V}$
 $10\mu\text{sec @ } 5\% \text{ duty}$



— = Microstrip on 25 mil alumina; $\epsilon_r=10$
 C1 = 82pF chip cap
 C2 = 0.3 - 3.5pF variable
 C3 = 100 MFD @ 50V



CAGE OPJR2	DWG NO. TAN 75A	REV A
SCALE	1/1	SHEET